

CORPORATE WORKING CAPITAL STRATEGIES IN EUROPE: A CROSS-INDUSTRY AND CROSS-COUNTRY ANALYSIS

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Abstract

Corporate finance literature traditionally abounds in both theoretical discussion and empirical research concerning financing and long term investment decisions. Managing short term resources seems a much less remarkable issue, despite their considerable share in a firm's balance sheet and their significance for corporate health. This article provides insights into the working capital strategies in the European Union perspective from the point of view of two factors affecting this capital. The determinants considered in the study include two external factors, namely the country and industry where a company operates. The theoretical part of the paper contains literature review reflecting the impact of the selected factors on working capital management. The empirical analysis covers groups of firms in nine EU countries and thirteen industries in the period 2000-2010. Corporate working capital is characterised by several financial ratios. The objects treated as countries, industries and industries in countries are categorised into three strategic groups (aggressive, neutral and conservative) according to the linear ranking based on the aggregated taxonomic measure.

Keywords: working capital, industry effect, country effect

Introduction

The problem of working capital management and the factors affecting working capital requirements is crucial from the point of view of corporate health (Filbeck, Krueger 2005), manifested by a balance between profitability and liquidity. Working capital management, which involves monitoring each component, as well as minimising deviations from the target level, is a complicated and time-consuming process (Lamberson 1995, Appuhami 2008, Kim, Srinivasan 1991). Insufficient managerial knowledge about the working capital determinants, resulting in ineffective planning and control of current assets and liabilities, may contribute to the insolvency or even bankruptcy of enterprises (Rafuse 1996). Despite the importance of the working capital for the corporate financial condition, the empirical evidence about its determinants is missing in the literature, especially taking into account the combined effect of the main working capital components, i.e. the inventory, accounts receivable and accounts payable (Nakamura, Nakamura Palombini, 2011). This study is an attempt to contribute to the corporate finance knowledge of short term decisions by exploring the regularities in terms of working capital strategies depending on the country and industry in which a company operates. The empirical analysis covers all-sized companies in thirteen industries and in nine EU countries during the period 2000-2010. The research methodology includes linear ranking based on the aggregated taxonomic measure.

1. Industry and country factors as determinants of WC strategies

The literature review in the area of corporate finance reveals that in contrast to the capital structure and long term financial decisions, theories of working capital management are much less developed. It appears, however, that some of the capital structure theories can also provide a starting point for the discussion on corporate working capital management. According to one of the most important capital structure theories – the Pecking Order Theory – considered in the context of working capital policy, companies with higher financial leverage tend to choose more aggressive working capital strategies, which involve such practices as tightening credit conditions for customers and reducing inventory, in order to ensure the internal financing and therefore avoid the issuance of debt and equity. A significant correlation between the level of debt and the company's working capital is found e.g. by Chiou et al. (2006), Nazir and Afza (2008), as well as Nakamura and Nakamura Palombini (2011).

The country specificity is a widely accepted factor influencing capital structure across firms operating in different countries. The most commonly recognized country-specific factors which can affect corporate financing strategies include political aspects, economic growth, capital market development (Demirgüç-Kunt, Maksimovic 1999, Booth et al. 2001, Claessens et al. 2001, Bancel, Mittoo 2004, Jõeveer 2005), and especially legal and institutional environment explored by La Porta et al. (1997).

If financial leverage depends on the country-specific determinants, and the working capital policy is affected by the corporate capital structure, then national characteristics might be also attributed some impact on the working capital policy. Surprisingly, however, it is difficult to find clear empirical confirmation of the direct relationship between the working capital and the country specificity in the hitherto financial literature.

However, as far as the other factor is considered, i.e. the business industrial classification, the literature provides sufficient evidence on its importance in terms of working capital, although researchers' opinions on the industrial significance are far from unanimity.

One of the earliest studies confirming significant relation between industry and working capital is the research by Nunn (1981), who used several industry variables, such as industry export, industry imports and industry concentration. After splitting working capital into permanent and temporary, the author examined only its permanent portion, which does not fluctuate with short-run changes in the business activity. The study was based on a U.S. database from 1971 to 1978 and included product-line firms in a variety of industries.

The industry dependence of working capital was also found by Hawawini et al. (1986), who examined a sample of 1,181 firms from 36 industries over a period of 19 years. The authors confirmed a significant and persistent industry effect on a firm's investment in working capital. Their results are also consistent with the concept that firms adhere to definite industry benchmarks when setting their working capital policies. For instance, working capital strategies of manufacturing firms are significantly different from service firms, since the former usually carry substantial inventory levels, whereas the latter carry virtually no inventory.

The industry-wise differences in the level of aggressiveness with respect to working capital investment over time were also reported by Weinraub and Visscher (1998). Their study included ten diverse industry groups to examine the relative relationship between their aggressive (conservative) working capital policies. Regarding the degree of aggressive asset management, the authors conclude that industries had distinctive and significantly different policies. In addition, industry policies concerning the relative degree of aggressive liability management were also found to differ significantly, but not to the same extent. The study also showed a negative correlation between industry asset and liability policies, which means that when relatively aggressive working capital asset policies are followed, they are balanced by relatively conservative working capital financial policies.

Industry significance in terms of working capital was also found in a study by Filbeck and Krueger (2005). Using data from a traditional working capital management survey published by CFO Magazine in United States, the authors assessed nearly 1,000 firms from the period 1996-2000 to support the importance of differences between industries in working capital measures across time and also significant changes in these measures within industries over the time. The researchers attributed these changes to the macroeconomic factors such as interest rate, innovation rate and competition.

Using data on a panel of U.S. corporations from the period 1990-2004, Kieschnick et al. (2006) found evidence that industry practices, among other factors, significantly influence the efficiency of a company's working capital management. The authors also observed a significantly negative relationship between firm value and investment in working capital, which is consistent with over-investment in working capital. Moreover, they found that the inefficiency of a firm's working capital management is uncorrelated with its industry's concentration, which suggests that firms tend to follow the industrial practices, instead of using their market power to improve the efficiency of their working capital management practices.

An industry dummy variable was also one of the factors examined by Nazir and Afza (2008) in the context of determining the requirements of working capital management. The authors found it statistically significant, using 204 manufacturing firms from 16 industrial groups listed at Karachi Stock Exchange, Pakistan, for a period of 1998-2006.

Despite the presence of logical indications about the importance of the industry specificity in the context of working capital management and wide empirical research supporting this thesis, there are also studies, although relatively infrequent, which do not find evidence confirming the relationship between industry and working capital. One of them is the research by Chiou et al. (2006) based on 19180 firm-quarter data extracted from Taiwan Stock Exchange from the period 1996-2004. The results did not provide evidence for the influence of the industry effect on working capital management. Recently, similar robustness of working capital behaviour to industry effects was also reported by Hill et al. (2010), whose sample consisted of 20710 firm-year observations for 3,343 companies from 1996-2006 from the COMPUSTAT database.

2. Data and methodology characteristics

The main objective of the study is to discover certain country-specific and industry-specific regularities in firms' behaviour in relation to their aggressiveness in the context of working capital management. In order to solve the research problem, the analysis is carried out in two sections: across countries and across industries. It includes all-sized companies in thirteen industries according to the NACE classification (Nomenclature Statistique des Activités économiques dans la Communauté Européenne) and in nine European Union countries: Austria, Belgium, Germany, Spain, France, Italy, the Netherlands, Poland and Portugal. Table 1. shows the industries covered by the study and the three-letter symbols assigned to each sector used in the following part of the paper. The harmonised and aggregated data from the annual reports of non-financial firms were used for calculating the working capital ratios for groups of companies in each country, industry, and each year of the study period covering the period 2000-2010.

Table 1. Economic industries covered by the study

NACE	Section	Symbol
A	Agriculture, forestry and fishing	AGR
B	Mining and quarrying	MIN
C	Manufacturing	MNF
D	Electricity, gas, steam and air conditioning supply	ELE
E	Water supply; sewerage, waste management and remediation activities	WAT
F	Construction	CST
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	TRD
H	Transport and storage	TRS
I	Accommodation and food service activities	HOT
J	Information and communication	INF
L	Real estate activities	RLE
M	Professional, scientific and technical activities	PRF
N	Administrative and support service activities	ADM

Source: Statistical Classification of Economic Activities in the European Community, Rev. 2 (2008)

In order to perform a complete analysis of the corporate working capital structure, it is desirable to examine not only the basic working capital ratio, but also various compounds of the working capital. With this in mind, and taking into account the data availability, the analysis involves the following ratios: inventories / net turnover (INV), trade accounts receivable / net turnover (TAR), trade accounts payable / net turnover (TAP), operating working capital / net turnover (OWC), current assets / total assets (CUR), current investment and cash in hand or at bank / total assets (CSH).

Due to the fact that the diagnostic variables selected for study are measured with different scales of reference (the ratios vary within different ranges), it is necessary to make them comparable. The first four ratios are expressed as a relation to net turnover, however, the last two ones – as a percentage share in total assets. Therefore, in order to enable further aggregation of the data, their dimensionality requires eliminating. One of the methods of standardising diagnostic variables is the method described by Borys (1978), which makes variables comparable with the use of their spread. This kind of transformation of variables brings their values to a fixed range of variation (Domański et al. 1998) – in this case [0;1].

The method of normalising diagnostic variables depends on their nature. Stimulating variables, therefore, are normalised according to the following formula:

$$z_{ij} = \frac{x_{ij} - \min_i x_{ij}}{\max_i x_{ij} - \min_i x_{ij}}, \quad (1)$$

where:

$$z_{ij} \in [0,1],$$

$$\max_i x_{ij} \neq \min_i x_{ij}.$$

Non-stimulating characteristics are normalised according to the formula:

$$z_{ij} = \frac{\max_i x_{ij} - x_{ij}}{\max_i x_{ij} - \min_i x_{ij}}, \quad (2)$$

where:

$$z_{ij} \in [0,1],$$

$$\max_i x_{ij} \neq \min_i x_{ij}.$$

Most of the diagnostic variables were classified as stimulating ones, as the higher their value, the higher the working capital level. The only exception is the ratio of trade accounts payable in relation to the net turnover, which constitutes a non-stimulating variable.

Summarising, the subject of the study is formed by the groups of companies from different industries in different countries and years. The working capital structure, measured with the use of financial ratios is the object of the analysis. Thus the data includes six financial ratios for the groups of enterprises in thirteen sectors and in nine countries for eleven years, which taking into account the missing data gives about 5550 observations. The source of data is the BACH-ESD database (Bank for the Accounts of Companies Harmonised - European Sectoral references Database).

The choice of the research methodology to a large extent is conditioned by the nature of the data, which is a relatively large collection of objects (industries, countries and years), characterised by a few diagnostic variables. Therefore, the application of taxonomic methods, which include linear ranking based on aggregated measures, constitutes a convenient way to simplify the structure of the primary data and identify the most important regularities.

The initial phase of the empirical research is the univariate analysis of variance (Fisher 1954) of the working capital ratios in the three cross-sections, i.e. across countries, across industries, as well as across time. Its purpose is to determine whether the differences in working capital ratios are statistically significant. Serious deficiencies in diversity significance of ratios could predestine them to be removed from further analyses. Another reason for removal of variables is their strong interdependence, which was measured with the Pearson's correlation coefficient. The variables used for constructing the aggregated measure of development should be orthogonal, rather than duplicate the information content carried by them.

The next step aiming at detecting regularities in the corporate working capital management is the linear ordering of objects treated as industries, countries and industries in countries depending on the aggressiveness of the short-term financial strategies of their representative companies. Assigning positions to individual objects within the population based on their specific characteristics, i.e. the ranking procedure, is characterised with transparency and communicativeness of the results, which greatly facilitates the recognition of multi-dimensional phenomena. However, an important disadvantage of the linear ranking method is the considerable simplification of complex data structures, mainly by distortion of the actual distances between objects being ranked, as well as the loss of a significant portion of the information due to aggregation. The result of assigning ranks to objects is separating them from each other by conventionally identical distances in only one dimension, when in fact they are characterised by a much larger set of attributes and their relative position in the multidimensional space may seriously deviate from their uniform distribution with artificially fixed spaces. Therefore, the ranking method should not be used as the only learning tool, but as a way to indicate some general patterns and setting out directions for further proceedings.

There is a number of alternative ways of assigning positions to objects. One of the simplest ways is assigning ranks based on each feature separately and then determining the total or average rank

based on all ranks involved. This method, however, due to the double positioning, generates even greater distortions than the ranking process based on one aggregated characteristic. In any case the final list contains some distortions, but in the latter case they appear only in the last phase of the organising procedure.

With this in mind, the taxonomic measure of development was used as a base for ranking the objects. The taxonomic method enables comparing multivariate objects by constructing a synthetic measure, which allows ordering them linearly. The starting point is the matrix of observations, where the rows represent objects, while the columns contain values of individual variables (ratios) for each object. Then the coordinates of the standard object are determined, which take the maximum value for stimulating variables, and the minimum for non-stimulating ones.

$$z_0 = [z_{01}, z_{02}, \dots, z_{0k}], \quad (3)$$

where:

$$z_{0i} = [\max_i \{X_{ij}^+\}, \min_i \{X_{ij}^-\}],$$

X_{ij}^+ – stimulating diagnostic variable,

X_{ij}^- – non-stimulating diagnostic variable.

The compliance of individual objects with the standard object is determined by measuring the distance of each value from the observation matrix from the standard object, for example with the use of Euclidean distance (Grabiński, 1992):

$$d_{j0} = \sqrt{\sum_{i=1}^k (z_{ij} - z_{0i})^2}, \quad (4)$$

where:

d_{j0} – distance of the j -th object from the standard object.

The smaller the distance, the closer the object to the standard. Given the vector containing the distances of individual objects from the standard object, their mean and standard deviation is used to determine the degree of deviation from the standard:

$$d_0 = \overline{d_0} + 2\sqrt{\frac{1}{j} \sum_{n=1}^j (d_{j0} - \overline{d_0})^2}, \quad (5)$$

where:

$$\overline{d_0} = \frac{1}{j} \sum_{n=1}^j d_{j0}$$

d_0 – the reference value for distances from the standard object.

This is done by referring the Euclidean distances (4) to the greatest possible distance set in (5), which allows to determine the final taxonomic measures and to rank the analysed objects according to their similarity to the standard (Nowak 1990, Pluta 1977). The taxonomic measure (m_j) contains the information of all the criteria examined:

$$m_j = 1 - \frac{d_{j0}}{d_0}. \quad (6)$$

The measure takes values from [0;1]. The higher the value of the measure, the bigger the similarity of a given object to the standard object. The taxonomic measures determined in (6) constitute the basis for assigning ranks to the analysed objects and ordering them from the most conservative to the most aggressive in terms of working capital policy.

3. Research findings

In order to verify whether the differences in means of ratios between countries, industries and years, are statistically significant, the one-way analysis of variance was employed. The discriminatory power of ratios was evaluated with the use of the F-statistic and probability p , whose values for the entire data set are shown in Table 2. The cases, for which there was no reason to reject the null hypothesis about the equality of means were highlighted. The calculations show that most of the ratios

considered are characterised with good discriminatory properties both across countries and across industries. Each of the six ratios differs significantly at least across one of the two sections. However, the ANOVA procedure conducted for the grouping factor of time, showed no significant diversity of most variables.

Table 2. One-way analysis of ratios variance across countries, industries and time: F-statistic and p values, $p = 0,05$ (significant differences are highlighted)

Effect		Ratio					
		INV	TAR	TAP	OWC	CUR	CSH
Country	F	1,692	15,11	19,67	4,103	1,496	6,306
	p	0,109	0,000	0,000	0,001	0,167	0,000
Industry	F	6,228	2,247	1,160	1,998	21,23	4,679
	p	0,000	0,016	0,326	0,036	0,000	0,000
Year	F	0,530	0,572	1,813	0,376	1,994	3,496
	p	0,853	0,821	0,061	0,947	0,036	0,000

Source: author's calculations based on BACH-ESD database.

Therefore, the time average of the ratios might be considered as a typical level of phenomena during the eleven-year analytical period. As a consequence, the following analyses are based on means of variables, thus excluding the time factor.

The correlation of variables is presented in Table 3. The pair of the most correlated variables is the inventory ratio and the ratio of operating working capital, which suggests that the inventory constitutes a considerable part of the total corporate working capital. The level of interdependence of these two ratios suggests eliminating one of them from further analyses.

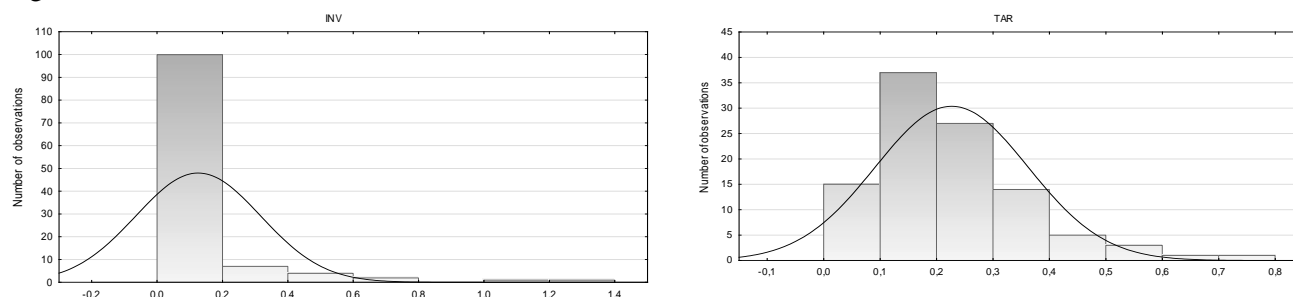
Table 3. Correlation matrix of variables (coefficients significant at $p < 0,5$ are highlighted)

Ratio	INV	TAR	TAP	OWC	CUR	CSH
INV	1,000					
TAR	0,075	1,000				
TAP	0,238	0,724				
OWC	0,831	0,473	0,375			
CUR	0,183	0,152	0,047	0,195		
CSH	-0,182	0,073	-0,124	-0,132	0,443	

Source: author's calculations based on BACH-ESD database.

Considering the informative content of these two variables, it is reasonable to remove the inventory ratio, rather than the more synthetic and informative ratio of WC. The correlation of other ratios, although in some cases statistically significant, hardly exceeds 0,7, which however does not seem a sufficient reason for eliminating any other variables, especially given their conceptual relevance. Besides, in some empirical analyses, introducing variables which are mutually dependent is purposefully used as a method, which replaces assigning weight coefficients to variables.

An additional reason for removing the inventory ratio from the target set of variables is its distribution, which considerably departs from normality. Although other ratios also do show some departures from the normal distribution, the degree of these deviations is not as evident as in the case of the inventory to turnover ratio. The normality of ratios' distribution can be visually evaluated in the Figure 1.



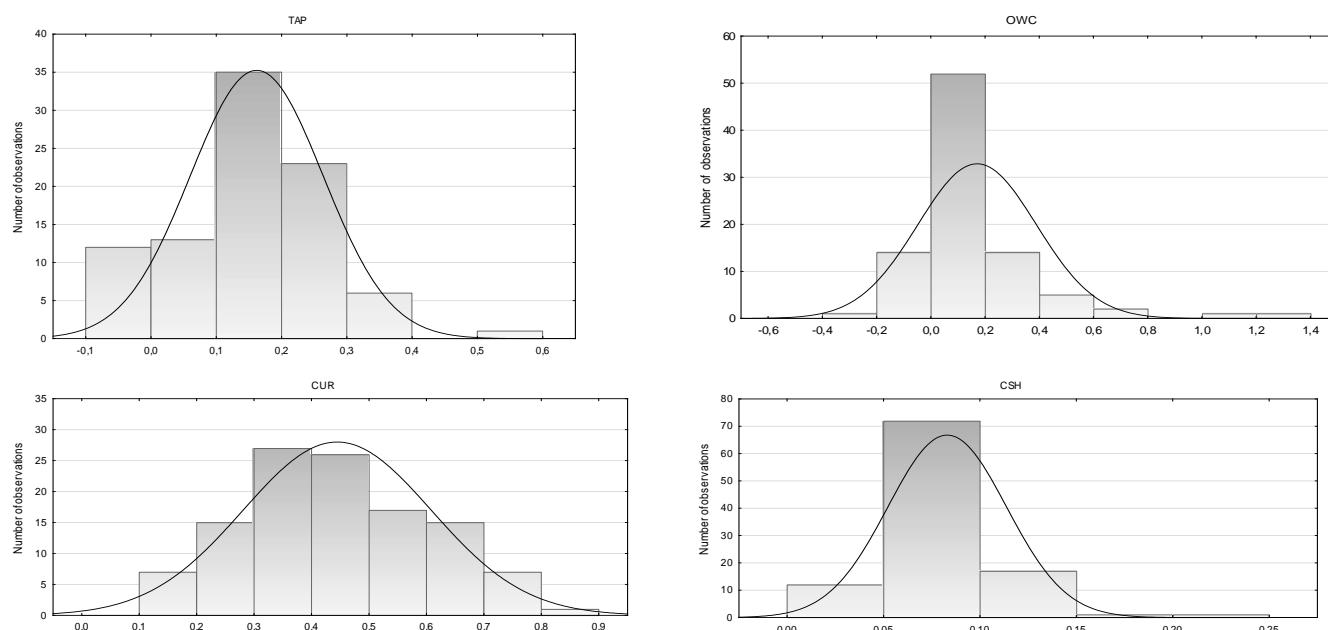


Fig. 1. Histograms of ratios
Source: author's calculations based on BACH-ESD database.

After taking into account the ratios' variance, interdependence and normality of distribution, the target set of variables includes the following ratios: TAR, TAP, OWC, CUR and CSH. These five characteristics were applied for computing the taxonomic measures of working capital (4), which were then used as the basis for ranking the objects. Due to the missing data of most ratios for the Netherlands (only the ratios of inventory and current assets are available), the country was not included in the ranking.

The ranking results for countries in all industries as a whole as well as individually are presented in Table 4. The higher the position of a country in the list, the safer its situation in terms of working capital, because the higher the relative value of working capital and its components (apart from trade accounts payable). Therefore, in order to classify the analysed countries according to the degree of aggressiveness of their working capital strategies, the countries with the three top ranking positions were considered as conservative. On the contrary, the countries with the lowest positions (6, 7 and 8) were recognised as following aggressive working capital policies. The middle-ranked country items (positions 4 and 5) were classified as neutral.

Table 4. Linear ranking results for countries

Country	Industry													
	AGR	MIN	MNF	ELE	WAT	CST	TRD	TRS	HOT	INF	RLE	PRF	ADM	ALL
AT	7	7	7	8	6	8	8	8	5	3	8	3	7	8
BE	4	6	5	6	1	5	5	3	2	8	2	1	6	1
DE	.	8	8	3	8	6	7	6	1	6	7	4	8	7
ES	6	2	2	5	3	2	6	4	3	4	3	7	3	3
FR	1	3	1	1	4	1	1	2	8	1	5	8	1	2
IT	5	5	6	2	2	7	4	5	6	5	1	5	5	5
PL	2	1	3	4	5	3	3	1	4	2	6	2	2	4
PT	3	4	4	7	7	4	2	7	7	7	4	6	4	6
Conservative WC strategy					Neutral WC strategy					Aggressive WC strategy				

Source: author's calculations based on BACH-ESD database.

The ranking reveals that on average the safest, i.e. the most conservative working capital strategies are followed by enterprises from Belgium, France and Spain. Austrian and German firms are leaders as performers of aggressive strategies. Poland ranks in the middle of the list, although when considering individual industries separately, Polish firms also usually prefer safer methods of financing short-term assets. When comparing the rankings across industries, the position of Poland is the most stable, as opposed to France.

Establishing the position of a country in individual industries does not provide inference about the position of the industries in this country. For example, the fact that France ranks first in the agriculture sector might, but does not necessarily mean that the agriculture has the same position in the ranking of industries in France. Therefore, it is purposeful to analyse the linear order of industries in different countries. The positioning procedure of industries proceeded in the same manner as for the countries, i.e. was based on the taxonomic measure constructed with the use of the selected diagnostic variables. The results are shown in Table 5.

In order to categorise the industries into three groups according to their working capital policies, the first four ranks were classified as conservative, whereas the last four ranks – as aggressive. The middle ranks (from 5 to 9) were attributed the neutrality feature. The order of industries in countries shows that companies from the sector of professional and technical activities are characterised with the most conservative working capital policies on average. They are then followed by firms from the construction industry and from information and communication sector. The last positions in the ranking, i.e. those characterised with the most aggressive working capital parameters are occupied by enterprises from the accommodation industry, electricity, real estate and transport industry. Generally, the lowest positions remain very stable across countries, which means that industries with the most aggressive strategies follow similar strategies in most countries analysed. The only exception is the real estate sector, which is classified either as aggressive (Austria, Germany, France and Poland), neutral (Belgium, Spain, Portugal) or even conservative, as in the case of Italy.

Table 5. Linear ranking results for industries

Industry	Country								
	AT	BE	DE	ES	FR	IT	PL	PT	ALL
AGR	8	5	.	9	3	11	5	9	8
MIN	9	11	10	1	7	8	8	8	6
MNF	4	9	4	7	2	6	6	3	5
ELE	11	13	8	12	12	12	10	13	12
WAT	7	2	9	8	10	5	11	11	9
CST	3	3	2	2	4	9	2	5	2
TRD	5	4	5	10	6	4	7	4	7
TRS	10	10	7	11	9	10	9	10	10
HOT	12	12	11	13	13	13	13	12	13
INF	2	8	3	3	5	1	3	7	3
RLE	13	7	12	5	11	3	12	6	11
PRF	1	1	1	6	8	2	1	2	1
ADM	6	6	6	4	1	7	4	1	4
Conservative WC strategy			Neutral WC strategy			Aggressive WC strategy			

Source: author's calculations based on BACH-ESD database.

The comparison of the above ranking results of countries and industries shows that in both cases there are certain regularities concerning both categories of objects. For instance Polish companies are classified as conservative in most industries, with only few cases where they are neutral. Similarly, the accommodation industry is characterised with aggressiveness across all countries. At the same time however, there are both examples of countries, which significantly change their position depending on industry, such as France, as well as industries classified differently in terms of aggressiveness across countries, e.g. real estate or water supply sector. This proves that in some cases the industrial classification as well as the region affect corporate working capital management.

It might be also relevant and informative to analyse the order of the binominal objects, i.e. the ranking of industries in countries according to the aggressiveness of their working capital strategies. Similarly to previous categorisations, all the items subject to the ranking procedure were divided into three fairly equal groups. The items ranked from 1 to 34 were classified as conservative, whereas the items from the last 34 positions were considered as aggressive. The middle-placed 35 objects constitute the group of neutral in terms of working capital. The ranking results for industries in countries are presented in table 6.

Table 6. Linear ranking results for industries in countries

Working capital strategy					
conservative		neutral		aggressive	
rank	item	rank	item	rank	item
1	BE_PRF	35	DE_CST	70	AT_MNF
2	PL_CST	36	ES_PRF	71	PL_WAT
3	PL_PRF	37	ES_ADM	72	AT_ADM
4	PL_INF	38	AT_INF	73	BE_MIN
5	FR_CST	39	BE_TRD	74	DE_HOT
6	PL_ADM	40	FR_AGR	75	PL_HOT
7	BE_WAT	41	ES_RLE	76	FR_ELE
8	PL_TRD	42	FR_TRD	77	ES_TRS
9	AT_PRF	43	ES_MNF	78	DE_TRS
10	IT_PRF	44	FR_PRF	79	DE_ADM
11	ES_MIN	45	DE_INF	80	IT_ELE
12	ES_CST	46	BE_AGR	81	PL_RLE
13	PL_MNF	47	ES_WAT	82	DE_ELE
14	PL_AGR	48	AT_CST	83	FR_RLE
15	FR_ADM	49	FR_MIN	84	BE_ELE
16	PT_CST	50	ES_TRD	85	DE_MIN
17	PL_MIN	51	PT_ADM	86	BE_HOT
18	DE_PRF	52	PT_MNF	87	IT_HOT
19	IT_INF	53	PT_MIN	88	PT_WAT
20	BE_CST	54	IT_MIN	89	AT_WAT
21	IT_WAT	55	BE_INF	90	FR_HOT
22	IT_RLE	56	PL_ELE	91	PT_TRS
23	FR_INF	57	PT_RLE	92	ES_ELE
24	IT_TRD	58	BE_MNF	93	AT_HOT
25	FR_MNF	59	ES_AGR	94	ES_HOT
26	PT_PRF	60	PT_INF	95	DE_WAT
27	PL_TRS	61	IT_TRS	96	PT_HOT
28	IT_ADM	62	AT_TRD	97	AT_TRS
29	IT_MNF	63	FR_WAT	98	PT_ELE
30	BE_RLE	64	IT_AGR	99	AT_ELE
31	IT_CST	65	DE_TRD	100	AT_MIN
32	ES_INF	66	FR_TRS	101	DE_RLE
33	BE_ADM	67	DE_MNF	102	AT_AGR
34	PT_TRD	68	PT_AGR	103	AT_RLE
		69	BE_TRS		

Source: author's calculations based on BACH-ESD database.

Conclusion:

In order to facilitate the identification of the most characteristic (dominating) objects in each group, the synthetic summary containing the number of country items and industry items is presented in Table 7.

Each of the three distinguished categories of working capital strategy is characterised by some dominating elements both in the form of countries and industries. Polish and Italian firms from most industries are classified as conservative, whereas German and Austrian companies are mostly aggressive. Spanish, French and Portuguese firms are most often categorised as neutral.

Table 7. The number of country-items and industry-items in categories of working capital strategies based on the ranking results of industries in countries.

Country, industry	Working capital strategy		
	conservative	neutral	aggressive
AT	1	3	9
BE	5	5	3
DE	1	3	7
ES	3	7	3
FR	4	6	3
IT	8	3	2
PL	9	1	3
PT	3	6	4
AGR	1	5	1
MIN	2	3	3
MNF	3	4	1
ELE	0	1	7
WAT	2	2	4
CST	6	1	0
TRD	3	5	0
TRS	1	3	4
HOT	0	0	8
INF	4	4	0
RLE	2	2	4
PRF	6	2	0
ADM	4	2	2

Source: author's calculations based on BACH-ESD database.

As for industries, the most often conservative firms dominate in the construction industry and professional activities. Firms operating in the accommodation sector as well as electricity industry tend to follow aggressive strategies, almost irrespectively of the country. Agricultural and trading firms usually are placed in the middle – neutral category.

The results suggest that both determinants considered in the study, i.e. the country-specificity, as well as the industrial classification of firms constitute considerable factors affecting corporate working capital policy. It has to be borne in mind however, that the above classifications of industries and countries are very relative and sensitive to inclusion of other diagnostic variables.

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